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The Strengths of Close Ties: Taiwanese Online Entrepreneurship, Gender and Intersectionality

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Abstract

This article examines entrepreneurs who have started innovative Internet and mobile technology companies in Taiwan because they are at the forefront of industrial changes in the country. Similar to findings in Europe and the USA, education and careers in technology in Taiwan remain dominated by men. However, I argue that the gender inequality of the sector is partly the result of the fact that small new enterprises rely on family support and close social networks. Few women are able to join the sector with male friends and colleagues due to the close social ties of the founding teams (homophily). Among my female interviewees, half have started their nascent companies with their husbands and male partners (husband and wife teams). However, gender, family backgrounds and childcare responsibilities affect both men and women, and the interviewees in my study were open in discussing these personal factors in relation to being entrepreneurs. This article argues that starting an Internet company is a family decision, discussed within the household. Intersectionality, not only gender, explains the founders' decision to start a company, and their choice of co-founders.

Keywords

Social networks, gender, social capital, new media, start-up companies, intersectionality

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Introduction

From 1996-2011, the industrial transformation of Taiwan was closely related to its transition to an economy of high-tech industrialization with IT export as the key driver. However, Taiwan's OEM industry (OEM stands for 'original equipment manufacture', meaning the equipment is purchased and sold under another company's brand name), an important part of

the country's economy in the 1970s and 1980s, has found itself competing with industrializing countries in Asia, most notably the People's Republic of China (PRC). Today, Taiwanese corporations still build over 90% of the world's laptops for brands such as Dell and Apple under the OEM system, with many being manufactured under license in Mainland China due to lower labour costs. Conversely, Taiwanese brands such as Acer and HTC are under threat from Mainland Chinese competitors including Lenovo, Huawei and the latest rising electronics brand Xiaomi (Sui, 2013; see Zhou, 2008), as well as Samsung and Apple. To maintain its competitiveness and economic advantages, Taiwan continues to transition from OEM to OBM (original brand manufacturer), and this requires different kinds of innovation and entrepreneurship. The knowledge-based economy has become an important growth area for the island, which will ensure its global competitiveness. Many of the companies in the Taiwanese online economy are also small and medium sized enterprises (SMEs) and this sector is a particularly risky field, as its market is volatile, fast-moving and highly competitive. In this article I focus on innovative, digital producers seeking to exploit the online economy, especially the web 2.0 environment, and examine the experiences of the founders of start-up companies and SMEs, and the social networks associated with Internet entrepreneurship.

Numerous research projects have been conducted in relation to industrial development in Taiwan, by both scholars based in the country and abroad. Electronics and OEMs are among the main sectors where large Taiwanese business groups are found. Colleagues at the Institute of Sociology, Academia Sinica, have been particularly concerned with the effects of globalization on the island's business development. It is often expected that the traditional SMEs in Taiwan would find it difficult to compete in a global market because of their inability to innovate. However, Lin Thung-hong (2014) finds that the large Taiwanese corporations have seen recent expansion and growth in size. Qualitative research into the human capital within the leadership of Taiwanese businesses comes mainly from sociological and anthropological approaches, including studies on female entrepreneurs of family businesses (Lu, 2001; Simon, 2003). With the advent of the online economy and small high-tech enterprises, there has been a lack of research into the individuals who start them. Studies on the transnational activities of workers and entrepreneurs within Taiwan's high-tech sector (Chang, 1992; Leng, 2002) have demonstrated that there are highly mobile, international jet-setting technical workers who are central to the longstanding links between Silicon Valley, Taiwan and the flow of venture capital (English-Lueck, Darrah, & Saveri, 2002; Sabel &

Saxenian, 2008; Saxenian, 2002). Taiwan's brain drain of highly educated graduates of the 1980s (mainly to the USA) has reverted to a more complex web of mobility and the existence of these 'techies' impact on the different locations they operate in (Saxenian & Hsu, 2001), which are now extending into the PRC. There is far less attention paid to the experiences of returnees beyond their mobility. Within management literature social networks between Asian firms have been researched (Hitt, Lee, & Yucel, 2002), while relatively little qualitative or empirical research has been conducted with nascent companies and human subjects. This article addresses these issues. I have adopted qualitative social enquiries in investigating the experiences of start-up entrepreneurs as knowledge workers in an eco-system that can signal the future of Taiwan's innovative economy.

Aihwa Ong (2006, p. 159) asserts that the notion of technology has been closely linked to American 'can-do' optimism and 'the late twentieth century of American values of education, innovation, and entrepreneurialism have now been adopted by elites the world over' (2006, p. 173). In the context of Taiwan, many of those who start Internet companies belong to or aspire to be those elites who have the educational capital and technological knowhow to bring about innovation. They are 'symbol analysts' (2006, p.159), working with language, ideas and icons. They are also knowledge workers (Drucker, 1999) because of their ability to make products, to succeed with this ability in order to generate and use knowledge. The major deciding factors for workers who can be classed as such, according to Peter Drucker (1999), are that they have to manage themselves; they strive on autonomy, innovation and learning; they generate qualitative not quantitative output; they are an 'asset' rather than cost.

In this article, I focus on the experiences of innovative, creative and Internet start-up entrepreneurs, building on the work I have done on creative and cultural workers in the film and media sector in the UK (Leung, Gill, & Randle, 2015; Randle, Leung, & Kurian, 2007). I examine how individuals, or founders as they are called in the start-up eco-system, are taking on risks and living in precarious conditions, so while they are aspiring capitalists as business owners, they are also performing 'venture labour' (Neff, 2012). Gina Neff's sociological research followed individuals in New York City in the early 1990s who were affected by the dot.com bubble. Dealing with uncertainty and being creative and innovative can be a model of future life for more and more employees, so the start-up entrepreneurs are 'new model workers' in contemporary capitalism (Ross, 2009). Whether influenced by push or pull factors, these 'creatives' have ventured into the realm of precarious work. The precarious,

insecure nature of embarking on new start-ups is ‘discursively sweetened’ by talk of entrepreneurialism and risk-taking, as ‘cool, creative and egalitarian’ work (Gill, 2002). My fieldwork in 2014 responded to the transitional economic conditions in Taiwan and investigated strategies by individual founders and teams who had set up companies that relied on the Internet and mobile technology. I consider them workers who have or try to have a firm control of their careers in ‘the Brave New World of work’ (Beck, 2000). Andy Pratt argues that new media (e-commerce, online-businesses) has become a ‘weightless economy’ in which reproduction can be cost-free and distribution is through software, and therefore little is written about its impact on geography (Pratt, 2000). Pratt carried out in-depth interviews and participant observation in Silicon Alley, New York (2000, p.429). He suggests that conventional business models do not apply to these new media firms, but instead those involved are attracted to the community of like-minded workers where ‘network [is] a constitutive and constructive process and entity’ (2000, p.432). The importance of human relationships (networks, trust and sociality) cannot be under-estimated. Networking can be so important that it becomes ‘compulsory sociality’ (Gregg, 2006), with the possibilities of exclusion for many others.

Mark Granovetter (1983) popularized the concept of the importance of weak ties in influencing job seekers’ chances. By considering individuals who exist within a start-up ecosystem, I propose that as they operate in an uncertain environment (most new companies fail within the initial three to five years), the nascent entrepreneurs have to rely on network sociality (Wittel, 2001). I consider how this kind of sociality has continued the tradition of business networks in Asia (and more specifically in Taiwan), and ruptured or developed into new forms of social relations. This study therefore contributes to the debates regarding social networks. Numerous studies on women who work in the technology sector have documented discrimination; how women are underrepresented, assumed to be less ‘technical’ and therefore are more likely to perform gendered roles within the industry (Guerrier, Evans, Glover, & Wilson, 2009; Michie & Nelson, 2006; Trauth, 2002; Wajcman, 2007). While fully aware of this prior knowledge and its application in Taiwan, I do not only focus on the gender of my research subjects, but adopt an intersectional (Brah & Phoenix, 2004; Crenshaw, 1991) ethic, so that they are regarded as individuals and representatives of different experiences and subjectivities that are attributed to the social groups they belong to. These are the main research questions that this article seeks to address:

What are the characteristics of the entrepreneurs of the nascent businesses?

How does the social and cultural capital of the Internet business founders influence their enterprises?

To what extent is online entrepreneurship reliant on social networks, and what impact do social networks have on the women in the sector?

Methodology

I employ social network analysis to visualize the personnel and organizations involved in the start-up eco-system. During my fieldwork in Taiwan in 2014, I conducted 77 semi-structured qualitative interviews with nascent entrepreneurs, funders and venture capitalists (VCs), and participated in industrial events, observed co-working spaces, incubators and the maker community in order to understand the creative start-up sector. My empirical research considers the biographical and company details of the nascent entrepreneurs. Through conducting semi-structured interviews, I examine factors influencing their businesses including personal background, education, training, management experience as well as national and transnational social and cultural networks. During fieldwork, I also conducted observation at many events and trade shows connected with the online industry. I then employ grounded theory to categorize the key words, phrases and terms used, the results being organized into themes as follows.

Data analysis

The Internet, innovative start-up eco-system

I found strong business co-ordination between different nascent enterprises in Taiwan. There is a broad institutional network with a multitude of interacting actors, encompassing an industrial system that turns technology into marketable products. This industrial system also collaborates with the education and training organizations and the financial institutions. There is a relatively small network society around the innovative, creative start-ups in existence in Taiwan (see below findings from SNA (Social Network Analysis)), which is mostly focused on the capital Taipei with smaller clusters in Hsinchu, Taichung and Kaohsiung.

Banks in Taiwan rarely offer loans to new start-ups, and Taiwanese investors are known to be conservative. They are more likely to invest mainly in companies already in Series B and C rounds of fundraising, and aim to make money through portfolio companies going public (through Initial Public Offering or IPO). Many investors and venture capitalists have come

from traditional industries such as OEM, so those in the online and software sector often comment that local investors do not understand their products and are risk-averse. However, this is changing and in my research I have come across VCs and angel investors who have started to focus on internet-related businesses in the last few years. The business incubator is a formal means of assisting start-ups and their founders, mostly using models imported from the USA. Many such incubators have sprung up in Taiwan, including several that adopt the Y-combinator model that began in Silicon Valley in 2005. According to a study by a team at Cambridge University's Judge Business School, business founders consider seed funding, equity, class size, training and office services in choosing accelerators (Birdsall, Jones, Lee, Somerset, & Takaki, 2013, p. 7). The quality of mentors, the brand of the accelerators and networking opportunities are the most important factors when entrepreneurs select programmes. The Taiwanese programmes often follow the US models closely with the exception that the incubators and accelerators in Taiwan rarely provide early seed funding and that they do not acquire equity in return when nascent companies join the schemes. The private accelerator AppWorks¹, Taipei, is based on the Y-Combinator model with rent-free office space for six months, social events, advice sessions, an increasing alumni network, and connections to VCs. One of the founders of AppWorks agrees that the most important training for the teams is through its alumni and mentor networks, rather than the accelerator process *per se*. The networks are the most important asset to the alumni if they survive and continue for the next two to five years. Many entrepreneurs agree that the most valuable experiences from these programmes are friendship and contacts:

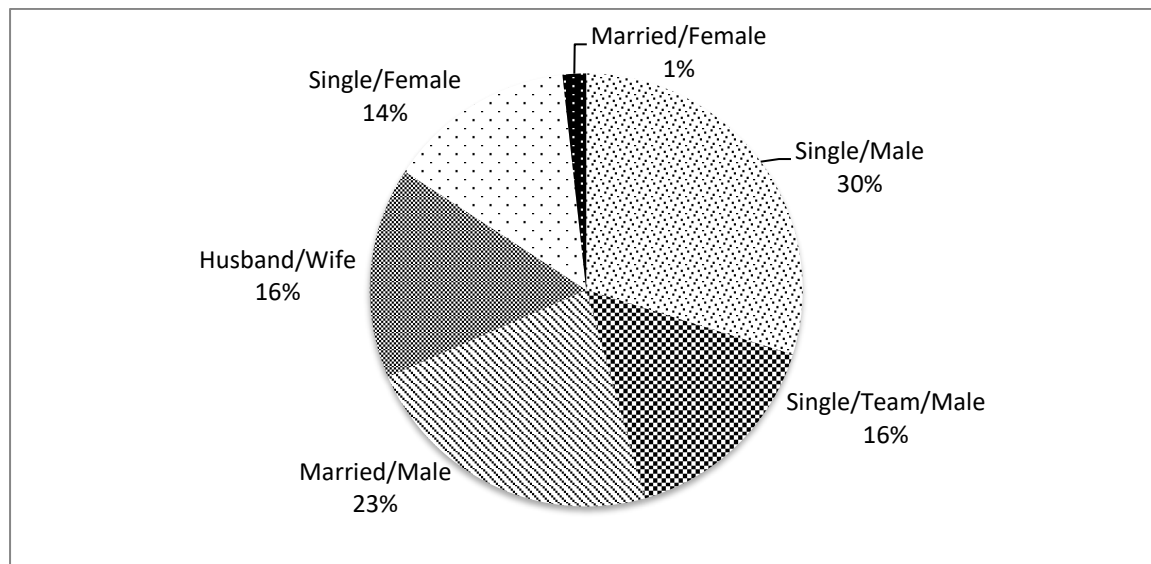
Interpersonal relationships ... If the partners and mentors of the incubators have some other friends, they can introduce you to them ... I feel this is most useful. Through the Facebook group, you have access to several hundred alumni. (Male founder, hardware-software integration)

One founder of an incubator states,

Incubators are necessary – young people who have just graduated, performed military service ... they don't have much of a social network. Incubator is about accumulating resources and creating social network connection ... this way, incubators generate value.

The entrepreneurs

Figure 1 Categories of Interviewed Entrepreneurs



Sixty teams and individual entrepreneurs, and seventeen representatives from related organizations (incubators, venture capital funds, co-working spaces) were interviewed during fieldwork in 2014. Based on the information about their personal details in the interviews, I have categorized 57 of the entrepreneurs into several groups (see Figure 1). Seventeen are single men who have started their companies (in some cases, they are in teams though one person acts as the front man); nine are groups of majority male founders who have co-founded the companies. As their team identity is stronger than the first group, I have classed them separately. Together they form 46% of the entrepreneurs I interviewed. Among the ‘Single/Male’ sample, relatively few are part-time entrepreneurs. A game programmer works freelance for an American company but he also has his own ‘studio’ and collaborates with another colleague from the USA. One founder describes how he prepared for the start-up while working in a related field (electronics), and waited till he was sure (Male co-founder, eco digital camera). The start-up teams classed under the category of ‘Single/Team/Male’ are dominated by all male members. I encountered only one team that contains a female co-founding member. Founders often meet as fellow students or colleagues. One phenomenon specific to Taiwan is the military service that all male nationals have to serve, and some team members meet as fellow conscripts. One team contains a co-founder who is still in military

service.

As in my own work in relation to the cultural and creative industry professionals in the UK (Leung et al., 2015), intersections between gender, age and parental status affect the decisions made by entrepreneurs. This is particularly prominent among the married founders, whether male or female. Thirteen interviewees were male founders who are married, with seven identifying themselves as parents; among the seven, four have a full time job while founding companies part-time, explaining that they need secure jobs to support the family. This explains the higher proportion of those who are part-time entrepreneurs when compared to the unmarried sample. Natalie Wreyford argues, ‘It is difficult to talk about women and work without talking about childcare. The same is not true of men and work and this is still one of the most obvious difficulties to be managed by working women, even those who choose not to have children’ (2013, p. 1). This proves to be different in the case of my fieldwork in Taiwan. Male and female interviewees, when they have children, are equally open to discussing childcare responsibilities.

When I was an entrepreneur, income was a major problem. We could be working till 3, 4 [o’clock] in the morning and you have little time for yourself. So, you can’t do things with your family and children. Now I have a more stable life ...’ (Male designer, part-time product development through crowd-funding but had a start-up previously)

Married male founders talked about how consideration of family income could prevent them from starting a business. One runs a start-up alongside his full-time job because he is in a highly paid position and unable to give up a stable income especially after the couple had a child. Three married men’s wives were not working and two of them expressed some concerns for their family income. For instance, one male interviewee relied on eight years of saving to found the company. Though he is married and has responsibility for the family (his wife is not working, and they have a daughter), he did not want to start the business part-time but rather tried to give it ‘all his best’.

Because I am a bit older [born 1971], my family was against it at first, but I need to give myself some time. During this time, I will work hard to explore this. If I fail, I will go back to working part-time. (Male founder, hardware-software integration)

Three of the married men told me that their wives have stable incomes, which allows them to start the venture. Nine companies were founded by husband and wife teams, exactly 50% of the female founders I have included in this chart. Eight unmarried/single and childless women are founders by themselves (14% of sample). This means that among the married women who are involved in the start-up sector, they mostly do so with their partners. One single female founder stated,

In Asia, women are expected to get married, and then have a family. They may say, 'This is the best destiny for women'. But I feel, there are so many people getting married in the world, one less does not matter, so I do not need to get married ... I am not saying that staying at home and being a housewife is not good. Everyone is different. Always encountering new things is very interesting for me. (Female founder, e-commerce/designer household furniture)

There was only one married female founder who single-handedly started her companies. This founder also has children but she reported that her husband has a stable job and income and is supportive of her ventures. Her parents, however, have different views, with her mother expressing more conventional opinions about the role of married women:

My father is okay with [my starting companies] because he was also an entrepreneur. My mother thinks I am not too responsible to my family, to be messing with these things. (Female founder, e-commerce)

The participation of married women in the Internet start-up sector is a little different from that among the more traditional SMEs in Taiwan in which many married women were involved either as boss-wives or owners themselves (see Lu, 2001; Simon, 2003).

Demographic change in Taiwan resulted in a very low fertility rate in the country, to below replacement rate (M. Lee, 2009) (estimated at 1.11 total fertility rate in 2014, CIA²), despite the government's efforts to encourage childbirths (Chiu & Wei, 2011). Even among the husband and wife teams, few have children. Only two of the nine husband and wife teams have children (in both cases a single child). One husband and wife team (designer goods e-commerce) talked at length about their life as founders and they even made plans about when they have a child, how they may arrange the company around childcare. The male married

founders either do not have parental responsibility, or their children are being taken care of by their wives. In only one case, a male founder assumes most of the childcare responsibility as well as setting up a company, while his wife has a stable job. In another case, a female designer (of a husband-wife team) also cites that 'freelance' working allows her to work from home and look after her child.

It is also recognized that start-up entrepreneurship is difficult for 'the whole family' because of the time, resources and dedication required of the founders. Some male founders justified this by talking about the purpose of their venture, for instance, 'doing something' different, contributing to society, 'changing the way we live'. These may justify what appears to some a relatively selfish decision. As such, the decision to embark on entrepreneurship is often not a personal choice but a household decision. This is even more evident in the case of husband and wife teams. One female co-founder describes entrepreneurship as a lifestyle choice for the couple. One male co-founder left a stable job as a programmer to found a husband and wife team. A female co-founder of husband and wife team (social network site) talks about the working relationship with her husband,

The good thing is, because we are husband and wife, communication is easy. We can be more direct without giving too much consideration. The bad thing is: the pressure he gives me is not really pressure ... if a boss tells me to do something, I probably listen to him and quickly complete the task. As he is my husband, I probably think about whether I'll do it now or later.

Even for younger entrepreneurs who are yet to consider marriage or family, the experience of the immediate family sometimes has an impact on the younger generation:

My father is an entrepreneur, so he can understand. But he worries, and thinks, why leave a good job? As he started a business, he knows it's very hard. (Female founder, electronic payment)

The family therefore acts as a cultural and social resource whether they provide material support or not. The industrial and development history of Taiwan is reflected through the backgrounds of the latest generation of Internet entrepreneurs, as many have come from established family businesses. Often, having an entrepreneurial family background explains

their views on starting companies. One entrepreneur's venture is a spin-off from the parent company, established by his mother many years ago. Even though the new start-up is not yet profitable, he is able to subsidize it through managing the parent company. Many other founders have such entrepreneurial backgrounds, explained through the recent history of industrial development of Taiwan:

My father is an entrepreneur ... my other two co-founders' family backgrounds are also business. Their parents are entrepreneurs. (Male founder, social network site)

My grandmother felt it was good to start a business. For her generation, my grandparents' generation, after 1945, when the economic development in Taiwan was quite good, they started businesses to earn money. So they believe that you must be an entrepreneur to have the opportunities ... My parents, on the other hand, thought that perhaps I should have more work experience before starting a business. (Male founder, iBeacon product)

The immediate family and the family backgrounds of the entrepreneurs play an important role in their decisions to undertake the risk of starting a venture, and in the way that they manage the start-ups, such as going full time or not. Half of the 18 female entrepreneurs (all but one of the married women) are in fact in husband and wife teams, which means that married women tend not to start a company by themselves. However, whether male or female, my interviewees were open in discussing childcare responsibilities, family incomes and how the course of their lives has impacted on their nascent entrepreneurship.

The social networks of the start-up eco-system

If you are a nobody, you going to these workshops is a waste of time. No one will speak to you. Today I'm a successful person. Others will naturally come and look for you. (Male founder, fashion social media)

Taiwan businesses have traditionally relied on the all-important family networks as this ensures trust (Wong, 1996) and the governance structure within businesses is likely to lie within the hierarchy of the family (Yeh & Tsao, 1996). However, network capital, and specifically in the Chinese context, *guanxi* (interpersonal connections), often explains inter-firm relationships. Other powerful networks such as political elites may also help with the

entrepreneurs' success (Hitt et al., 2002). The most popular inter-family business partnership in Taiwan is traditionally with brothers (Z.-R. Lee & Chang, 2014, p. 9). The patrilinear line, marriage alliances, and equity between relatives also play a part within family businesses. Taiwan is known to have a rather antiquated banking system so that it is extremely difficult for new companies to borrow funds or for growing companies to be incorporated, and therefore family enterprises rely on their own social and financial resources.

Internet businesses can be relatively low-cost start-ups. However, even for start-up companies, the family effectively acts as security against high risks. Among my sample, there are few who start businesses with brothers and uncles, which was the practice often found in the traditional family business in Taiwan (Z.-R. Lee & Chang, 2014). Two interviewees founded companies with brothers when they had complimentary skill sets such as computer/programming, and design and business. However, the famous four 'Fs' of start-ups (reliance on family, friends, founders and fools for investment) remains largely true, except that rather than family members, peer group networks have become central within the online economy eco-system, which are based on shared social and educational capital.

Many interviewees talked about how traditional parents prefer their children to have a stable job in large corporations though this has been changing, reflected in many of my interviewees are supported by the family in their business ventures. Even though few Internet start-ups are 'family firms' in the traditional sense, family support, networks and investment should not be under-estimated. With the loosening of strong, family ties in Taiwan, start-up entrepreneurs, who are chiefly from the younger generation, are less likely to be completely compliant with their family's wishes regarding their career:

My [business] partner resigned from IBM. His family must disagree with this ... you must state your own reasoning. Even though parents may be angry, we should ultimately do what we like to do. (Male founder, educational software)

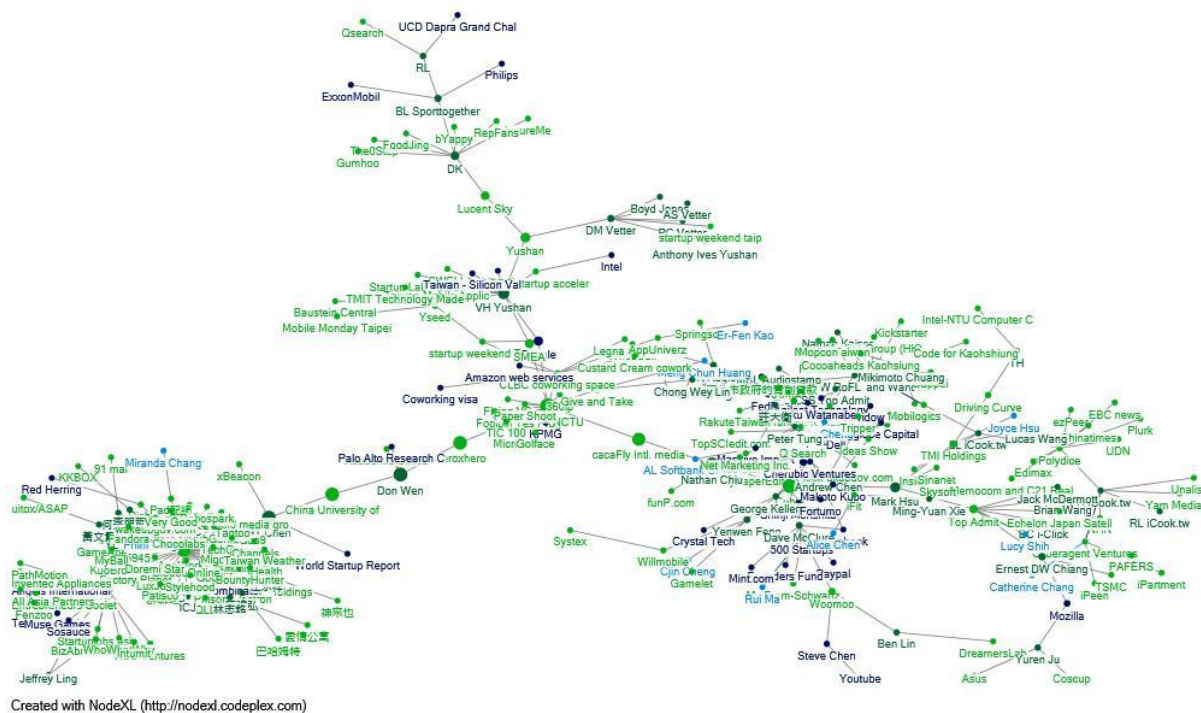
Some of my interviewees receive financial investment from their parents. It is also the case that many younger entrepreneurs state that as they come from relatively well-off families, there is little pressure for them to financially assist their parents and be independent, so they are free to at least try out something risky for the time being. In this regard, men and women may face different expectations, explained by changing social makeup affecting women:

I feel that it is possible that women don't have to bear the burden of family pressure to work for large corporations. Families may put more pressure on men ... so the younger generations of women can do something different. (Female principal, venture capital)

Having said that, some of these entrepreneurs, regardless of their gender, reported that their parents are also entrepreneurs, which has influenced their decision to start a company or their expectation of entrepreneurship. One young entrepreneur has taken over her parents' website and 'brand' after they moved on to another business in Mainland China. With the receding significance of family business connections, many of my informants found companies with fellow classmates or former colleagues, especially those who worked for the same tech companies. They are then assisted by different kinds of social ties, distinct from the reliance solely on family relations.

I conducted social network analysis (SNA) of personnel involved in the start-up eco-system of Taiwan (see Figure 2 using Harel-Koren Multiscale visualization). Two hundred and sixty five 'relationships' between individuals and organisations were included, based on the running of visualization software on 29 May 2014.

Figure 2 Social Networks of the Taiwanese Start-up Eco-system



The most central 'nodes' were incubators (such as the government-funded Yes Program based at the Hsinchu High-tech Park and next to the National Chiao Tung University, and AppWorks accelerator in Taipei). The most central individuals in these social networks were connected with such programmes as founders and principals or famous graduates and portfolio companies. The most central start-up was Cubie, a nascent company that had won many venture backers, followed by Top Admit and Woomoo, which have also been successful in raising venture capital funds. Venture capital funds and principals of these funds, such as VH Yushan and Mark Chu, also feature prominently. Several external organizations were also revealed to be highly connected, including Google, 500 Start-ups (American accelerator programme) and Echelon (a Singaporean tech conference, 'a marketplace' that allows many start-ups to gain exposure and possible funding), Global Brain (Japanese venture capital that was at the 2014 IDEAS show in Taiwan to attract local start-ups for the smartphone market). CyberAgent Ventures, another Japanese venture capital firm, runs a seed-stage incubation programme and has offices in Greater China and Southeast Asia. It appears therefore that the most central nodes are connected with venture capital, including VCs, founders and start-ups who have received it, and high profile incubator or accelerator programmes. In this SNA exercise, I identified 89 males and 12 women (13.5%). The women are connected with venture capital funds, project management of an accelerator and co-working space, and partners of husband and wife teams. There was only one solo-female founder but while on fieldwork, I discovered that her venture was no longer existent.

Venture capital funds and angel funds are often built around high profile individuals. One of the main venture capital firms in Taiwan that invest in software start-ups, TMI, was co-founded by Lucas Wang who was previously partner at another venture capital firm WI Harper's Beijing Office for six years and worked closely with Lee Kaifu (ex-CEO of Google China)'s incubator, Innovation Works, there. Mark Hsu, partner at Pinehurst Advisors, a venture capital fund which specializes in online and mobile companies, began with co-founding Sinanet (predecessor to Sina.com, a global Chinese Internet company). Hsu was with TMI before branching out with Pinehurst, and he acts as angel investor and mentor to start-ups as well. Resources, know-how, relationships and networks were offered by many founders and teams to be the elements that draw them to VCs as much as their investment. These organizations and highly networked individuals demonstrate the close-knit nature of the high-tech businesses in Taiwan (and in Greater China and the Asian region). One founder describes the access to investors as a 'closed route' and new entrepreneurs must spend time gaining exposure, presenting and pitching at trade conferences, getting to know VCs, then gradually negotiating with them. As such, social networks are extremely important for entrepreneurs.

With emerging, sometimes disruptive technology, Internet start-up founders need to establish trust and compatibility between business partners, so entrepreneurs often choose those who have close ties to them. Co-founders even liken relationships with colleagues to marriage:

We have been colleagues for a long time, so we understand each other's personality, character and needs. We should be able to work together for a long time ... we often say it's like marriage, yes. We need to have the same aim, walk on the same path.

(Male co-founder, team of five, hardware-software integration)

Partners are really important, because we see each other over a long time like a marriage, we must get on ... we rely on our partners to discuss what we can do, how to find resources, what we want to do. If we don't get on with our partners, it'll be very difficult to proceed. (Male co-founder, sports app)

One team I interviewed illustrates the close ties between founders very well. The team's start-up offers an online recruitment service using social media. What the three team members are

most passionate about, apart from the start-up, is an epic bicycle tour that they made before starting the business, when they rode from Beijing to Rome in seven months. This epic endeavour not only demonstrated their close ties and trust with one another, but their resourcefulness was also shown by the fact that they obtained sponsorship from many corporations including Giant, the bicycle brand and manufacturer.

The founding teams in my study reflect ‘homophily’: staying close to those who are similar to themselves, having met through studying and working together. They also rely on social and cultural networks outside of these immediate circles. This stands in contrast to the idea of the importance of weak ties in the labour market (Granovetter, 1983). I would assert that the nature of social ties have changed from reliance on family members to those with similar educational and cultural capital (close ties), and supplemented by networks of acquaintances (weaker ties). One funding and support resource is specific to Taiwan and the Asian contexts: the *senpai-kohai* (前輩 *qianbei* in Chinese or 學長-後輩 *houbei*) system. This is originally a Japanese concept. Although similar to the ‘old boys’ network’, the term *senpai* is an entrenched and often powerful system in many East Asian cultures (Brinton & Kariya, 1998). *Senpai* refers to those who are in previous cohorts at schools, colleges and the workplace, and they often mentor and assist younger students either in their studies or upon graduation in their future careers. One husband and wife team among my interviewees is also made up of *senpai* and *xuemei* (學妹 female student from a later cohort). The most common makeup of start-up teams is of ex-colleagues and ex-school and university friends, and founders tap into these established social networks:

My co-founders are both from [National] Chengchi University, so they found some *dimei* (弟妹, referring to those who come from later cohorts, the *kohai*) and ex-university friends [to work in the company]. (Male founder, social network site)

National Taiwan University, the country’s most prominent university, has its own alumni fund that has supported enterprises set up by its graduates. These interpersonal relationships are to some extent institutionalized through incubation and other programmes such as the Asia America MultiTechnology Association (AAMA) that focuses on mentoring, many creating a strong sense of cohorts and learning from those more experienced.

I have detailed previously the participation of women in the Internet and innovative start-up sector, with half of them in husband and wife teams. Due to the close social ties of the founding teams (homophily), few women are able to join the sector with male friends and colleagues. Education and careers in technology in Taiwan remain dominated by men. When I visited the Department of Electrical Engineering and Computer Science, National Taiwan University, I found three female members among the 127-strong faculty. The roles women assume within the new online companies are typically gendered. Most of the women involved in the sector, whether as founders or not, do not take on the technical roles. In a small minority of cases (two of my interviewees, both in husband and wife teams), the female founders take on the lead role and are designers and programmers, while the majority of women are involved in more traditional ‘people-oriented’ roles such as project management and marketing. The difficulties in gaining access to a male-dominated social network are recognized:

I’ve never been employed in the games industry. I am a woman, founder, and am not a programmer. It really isn’t easy... In Asia, because you are female, others may doubt your ability, and then mercilessly attack you ... May be it’s due to my personality. If others don’t give me a chance, I will still find a way... I have a very good [male] partner. So on lots of occasion ... he can go out and represent the company. (Female co-founder of husband and wife team, games)

I feel [my gender] definitely affects my work, especially when I talk to merchants. Because I’m embarrassed, female and I look young. So recently I have put on make-up that makes me look older, more mature. Lots of merchants tend to be older, and mostly male. They often call me ‘*meimei*’ (little sister), and feel that I don’t understand. There’s also smoking and drinking. They won’t invite you along. (Female founder, electronic payment)

There are nonetheless some high-profile start-ups that have been co-founded by women such as QLL (language learning), Goodlife (discounts portal), BossLady (underwear e-commerce), Womany (women’s online magazine), which tend to aim at a gender-specific market. As I have found with creative workers in Europe (Leung et al., 2015; Randle et al., 2007), sociality may include or exclude individuals depending on their social and cultural capital. In

the case of women in the high-tech start-up sector, it can be difficult to join the networks that are occupied predominately by men:

The negative is that there are few women in this sector, so I am not that active in networking ... this social circle, you can see that 80-90% are men. They are probably already connected from previous occasions, some other networks. So, perhaps for girls ... I am not that proactive. I may need to be more proactive to join in these social networks. (Female co-founder, messaging service)

Like the traditional industrial structure in Taiwan, small, new enterprises in the innovative sector still rely on family support and close social networks. Highly connected individuals, from venture capital firms, incubators, and successfully funded start-ups dominate the social networks within the start-up eco-system. Individual founders partner with those with whom they share close social ties, mostly via education and work, which results in the dominance of male teams. Founders also tap into weaker ties, especially the networks around the aforementioned high profile individuals, who can help them with technical, business know-how or access to capital. Women, on the other hand, are often excluded from these closely knit social networks and when they participate in the sector, they take on gender-specific roles or start companies that provide products or services more attuned to the female market.

Discussion

Taiwan has a long history of electronic hardware manufacturing. There are clear signs that this longstanding, successful industrial tradition is now facing stiff competition. In examining the founders of new Internet, innovative, creative and software technology companies, this article reveals the development of human resources in the high-tech sector, moving away from studies of the OEM industry and the mobility of technical personnel. I consider the entrepreneurs in my study as knowledge workers and venture labourers who take on high risks in order to participate in a brave new world of work.

I would assert that given the evidence, the new media start-up eco-system, involving venture capital, business incubators, accelerators and entrepreneurs themselves provide some form of mitigating factors for dealing with risks. Incubators allow founders and teams a period of time to establish their businesses. Principals of incubators, accelerators, venture capital firms

and business angels act as mentors and provide access to business networks and sometimes to potential investment. The alumni networks of established incubators help newcomers to build contacts, business and management knowledge. The family ties are less strong than in the past when most companies relied heavily on interpersonal relationships (*guanxi*) and trust among the patrilineal hierarchy. The ‘network society’ (Castells, 2000) around Internet start-ups shifts towards social, cultural and educational ties. Founders therefore rely on close ties within their immediate teams but tap into more extensive networks for business support.

Sociality is no less important than in traditional businesses. In fact, nascent entrepreneurs rely heavily on the four ‘Fs’ for support, and to help them deal with risks. Those from business family backgrounds are more likely to be influenced by their parents’ prior experience. Male founders dominate the Internet, innovative start-up sector. I argue that as the start-up process requires a close-knit team, trust and complementary skills set, so many choose to work with ex-college mates and ex-colleagues, resulting in homophily with potential exclusion of other groups, most notably female co-founders. The *senpai-kohai* tradition also exists in Taiwan, especially through more prestigious universities, disciplines and large high-tech corporations. Approximately half of my female sample set up companies with their husbands or male partners, a reflection of the lack of opportunity for women to participate in the close social networks of their male counterparts. Nonetheless, gender, family backgrounds and childcare responsibilities affect men and women and my interviewees were open in discussing these personal factors in relation to being entrepreneurs. This leads to my argument that starting an Internet company is a decision made by the household. Intersectionality, not only gender, explains the founders’ decision to start a company, and the operation and choice of their co-founders, especially in the case of husband and wife teams. One characteristic among the female founders, including those in husband and wife teams, is the relative low proportion of the sample who are parents. Having children is something that these founders, whether they are currently married or not, envisage to happen sometime in the future. While the sector, influenced by rapidly changing Internet and communication technology, presents potential for innovation and disruption to existing business models, the knowledge workers and venture labourers rely on social networks similar in construction to their more traditional counterparts, as a means to reduce or mitigate against risks.

This discussion examines different strata of the Taiwanese online economy to shed light on an innovation eco-system and the contributions made by the founders and entrepreneurs to a

sector that will ensure Taiwan's continued competitiveness. The relevance emerging from this article will enrich research in the conceptualization and practices of knowledge workers who are increasingly dealing with risks in the volatile new world of work. Even though these nascent entrepreneurs are business owners, they share the same struggles as many in the creative and cultural sector, having to bear the risks to their career and that of their co-founders and employees. Their reliance on social, cultural and educational capital and the evidence of the importance of an intersectional approach to studying the founders' experiences will inform social scientists concerned with the sociology of work, gender issues, and the application of ICTs in human society.

Endnotes

1. AppWorks Demo Day 9. <https://www.youtube.com/watch?v=UI9HTzOYnq0>. Accessed 15 November 2014.
2. This was third lowest in the world after Singapore and Macau.
<https://www.cia.gov/library/publications/the-world-factbook/rankorder/2127rank.html>. Accessed 11 November 2014.

References

- Beck, U. (2000). *The Brave New World of Work*. Cambridge: Polity.
- Birdsall, M., Jones, C., Lee, C., Somerset, C., & Takaki, S. (2013). *Business Accelerators: The Evolution of a Rapidly Growing Industry*. Cambridge: University of Cambridge Judge Business School.
- Brah, A., & Phoenix, A. (2004). Ain't I A Woman? Revisiting Intersectionality. *Journal of International Women's Studies*, 5(3), 75–86.
- Brinton, M. C., & Kariya, T. (1998). Institutional Embeddedness in Japanese Labor Markets. In M. C. Brinton & V. Nee (Eds.), *The New Institutionalism in Sociology* (pp. 181–207). Stanford, CA: Stanford University Press.
- Castells, M. (2000). *The Rise of the Network Society*. Oxford: Wiley-Blackwell.
- Chang, S. L. (1992). Causes of Brain Drain and Solutions: The Taiwan Experience. *Studies in Comparative International Development*, 27(1), 27–43.
- Chiu, C.-P., & Wei, S. (2011). Childcare Friendly Policies and Integration of ECEC in Taiwan. *International Journal of Child Care and Education Policy*, 5(2), 1–19.

- Crenshaw, K. (1991). Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color. *Stanford Law Review*, 43(6), 1241–1299.
- Drucker, P. (1999). *Management Challenges for the 21st Century*. Oxford: Butterworth-Heinemann.
- English-Lueck, J. a., Darrah, C. N., & Saveri, A. (2002). Trusting Strangers: Work Relationships in Four High-Tech Communities. *Information, Communication & Society*, 5(1), 90–108. doi:10.1080/13691180110117677
- Gill, R. (2002). Cool, Creative and Egalitarian? Exploring Gender in Project-Based New Media Work in Europe. *Information, Communication & Society*, 5(1), 70–89. doi:10.1080/13691180110117668
- Granovetter, M. (1983). The Strength of Weak Ties: A Network Theory Revisited. *Sociological Theory*, 1, 201–233.
- Gregg, M. (2006, December). *On Friday Night Drinks: Neoliberalism's Compulsory Friends*. Paper presented at *UnAustralia Conference of the Cultural Studies Association of Australasia*, University of Canberra.
- Guerrier, Y., Evans, C., Glover, J., & Wilson, C. (2009). “Technical, but not very....”: Constructing Gendered Identities in IT-related Employment. *Work, Employment & Society*, 23(3), 494–511. doi:10.1177/0950017009337072
- Hitt, M. A., Lee, H.-U., & Yucel, E. (2002). The Importance of Social Capital to the Management of Multinational Enterprises: Relational Networks Among Asian and Western Firms. *Asia Pacific Journal of Management*, 19(2, 3), 353–372.
- Lee, M. (2009). Transition to Below Replacement Fertility and Policy Response in Taiwan. *The Japanese Journal of Population*, 7(1), 71–86.
- Lee, Z.-R., & Chang, M. (2014, June). *Keeping up with the Family? A Longitudinal Analysis of Kinship Networks and Performance of Intercorporate Alliances*. Paper presented at Globalisation, Market Transformation and Taiwan Corporations 全球化，市場轉型與台灣企業 Conference, Institute of Sociology, Academia Sinica, Taiwan.
- Leng, T. (2002). Economic Globalisation and IT Talent flows across the Taipei / Shanghai / Silicon Valley Triangle. *Asian Survey*, 42(2 (March/April)), 230–250.
- Leung, W.-F., Gill, R., & Randle, K. (2015). Getting In, Getting On, Getting Out? Women as Career Scramblers in the UK Film and Television Industries'. *Sociological Review*, 63(S1), 50–65. doi:10.1111/1467-954X.12240
- Lin, T. (2014, June). *Size Matters: the Causes and Consequences of the Expansion of Taiwanese Business Groups*. Paper presented at Globalisation, Market Transformation and Taiwan Corporations 全球化，市場轉型與台灣企業 Conference, Institute of Sociology, Academia Sinica, Taiwan.

- Lu, Y. (2001). The Boss's Wife and Taiwanese Small Family Business. In M. C. Brinton (Ed.), *Women's Working Lives in East Asia* (pp. 263–298). Stanford, Calif: Stanford University Press.
- Michie, S., & Nelson, D. L. (2006). Barriers Women Face in Information Technology Careers: Self-efficacy, Passion and Gender Biases. *Women In Management Review*, 21(1), 10–27. doi:10.1108/09649420610643385
- Neff, G. (2012). *Venture Labor: Work and the Burden of Risk in Innovative Industries*. Boston, MA: MIT.
- Ong, A. (2006). *Neoliberalism as Exception: Mutations in Citizenship and Sovereignty*. Durham, NC: Duke University Press.
- Pratt, A. C. (2000). New Media, the New Economy and New Spaces. *Geoforum*, 31(4), 425–436. doi:10.1016/S0016-7185(00)00011-7
- Randle, K., Leung, W.-F., & Kurian, J. (2007). *Creating Difference: Overcoming Barriers to Diversity in UK Film & Television Employment*. Hatfield, Herts: University of Hertfordshire.
- Ross, A. (2009). *Nice Work if You Can Get It: Life and Labor in Precarious Times*. New York: New York University Press.
- Sabel, C., & Saxenian, A. (2008). Roepke Lecture in Economic Geography, Venture Capital in the “Periphery”: The New Argonauts, Global Search, and Local Institution Building. *Economic Geography*, 84(4), 379–394.
- Saxenian, A. (2002). Transnational Communities and the Evolution of Global Production Networks: The Cases of Taiwan, China and India. *Industry and Innovation*, 9(3), 183–202.
- Saxenian, A., & Hsu, J. (2001). The Silicon Valley-Hsinchu Connection: Technical Communities and Industrial Upgrading. *Industrial and Corporate Change*, 10(4), 893–921.
- Simon, S. (2003). *Sweet and Sour: Life-Worlds of Taipei Women Entrepreneurs*. Oxford: Rowman & Littlefield.
- Sui, C. (2013). *Taiwan's Struggle to Become an Innovation Leader*. *BBC Future*. Retrieved from <http://www.bbc.com/future/story/20130918-taiwans-rocky-road-to-innovation>
- Trauth, E. M. (2002). Odd Girl Out: an Individual Differences Perspective on Women in the IT Profession. *Information Technology & People*, 15(2), 98–118. doi:10.1108/09593840210430552
- Wajcman, J. (2007). From Women and Technology To Gendered Technoscience. *Information, Communication & Society*, 10(3), 287–298. doi:10.1080/13691180701409770

- Wittel, A. (2001). Towards a Network Sociality. *Theory Culture & Society*, 18(6), 51–76.
- Wong, S. (1996). Chinese Entrepreneurs and Business Trust. In G. G. Hamilton (Ed.), *Asian Business Networks* (pp. 13–26). New York: Walter de Gruyter.
- Wreyford, N. (2013). The Real Cost of Childcare: Motherhood and Project-based Creative Labour in the UK Film Industry. *Studies in the Maternal*, 5(2). Retrieved from [http://www.mamsie.bbk.ac.uk/documents/Wreyford_SiM_5\(2\)2013.pdf](http://www.mamsie.bbk.ac.uk/documents/Wreyford_SiM_5(2)2013.pdf)
- Yeh, K. S., & Tsao, L.-C. (1996). A Network Analysis of Ownership Succession of Family Owned Business. *Journal of Management*, 13(2), 197–225.
- Zhou, Y. (2008). Synchronizing Export Orientation with Import Substitution: Creating Competitive Indigenous High-tech Companies in China. *World Development*, 36(11), 2353–2370.